**IN THE CLAIMS:**

1. (CURRENTLY AMENDED) A method of operating a switch for frames in a computer network, comprising:

receiving a frame (received frame) at a port of said switch, said received frame containing one or more indicia of frame type, said one or more indicia of frame type in-cluding an indicia of a protocol type;

accessing a virtual local area network (VLAN) value associated with the port;

deriving a virtual local area network (derived VLAN) value in response to said one or more indicia of frame type and said VLAN value, said derived VLAN value for use internal to said switch;

accessing a forwarding ~~data base~~ database with said derived VLAN value to de-termine a destination address; and,

forwarding, in response to said derived VLAN value, said received frame to an output port for transmission to the destination address.


2-3. (CANCELLED)


4. (PREVIOUSLY PRESENTED)  The method of claim 1 wherein said indicia of frame type further comprises:

a subnet value.


5-7. (CANCELLED)

8. (CURRENTLY AMENDED)  The method of claim 1 further comprising:

    deriving a MAC address from said derived VLAN value and forwarding said re-
ceived frame to a~the output port for transmission to a destination having said MAC ad-
dress.

9. (CURRENTLY AMENDED)  An apparatus to forward frames in a computer network,
comprising:

    a port to receive a frame (received frame), said port associated with a virtual local
area network (VLAN) value, said received frame containing one or more indicia of frame
type, said one or more indicia of frame type including an indicia of a protocol type;

    a parsing engine to derive a virtual local area network (derived VLAN) value in
response to said one or more indicia of frame type and said VLAN value, said derived
VLAN value for use internal to said switch;

    a forwarding data base~database configured to use said derived VLAN value as an
input and to yield a destination address as an output; and,

    an output port to transmit said received frame, in response to said derived VLAN
value, to said destination address.

10. (ORIGINAL)  The apparatus as in claim 9 further comprising:

    a forwarding engine for forwarding said received frame in response to said de-
rived VLAN value and said destination address.

11. (CURRENTLY AMENDED)  A computer readable media containing instructions for
the practice of operating a switch for frames in a computer network, comprising:

3       receiving a frame (received frame) at a port of said switch, said received frame

4   containing one or more indicia of frame type , said one or more indicia of frame type in-

5   cluding an indicia of a protocol type;

6       accessing a virtual local area network (VLAN) value associated with the port;

7       deriving a virtual local area network (derived VLAN) value in response to said

8   one or more indicia of frame type  and said VLAN value, said derived VLAN value for

9   use internal to said switch;

10      accessing a forwarding ~~data base~~ database with said derived VLAN value to de-

11  termine a destination address; and,

12      forwarding, in response to said derived VLAN value, said received frame to an

13  output port for transmission to the destination address.


1   12. (CANCELLED)


1   13. (PREVIOUSLY PRESENTED)  A method of operating a switch for frames in a com-

2   puter network, comprising:

3       using one or more indicia of frame type found in a received frame to derive a vir-

4   tual local area network (derived VLAN) value, said derived VLAN value used internal to

5   said switch, said derived VLAN value different from a VLAN value associated the frame

6   external to the switch; and

7       using the derived VLAN value in making forwarding decisions.


1   14. (ORIGINAL)  The method of claim 13 further comprising:

2       controlling broadcast domains in the computer network by forwarding in response

3   to the derived VLAN value.

4

15. (PREVIOUSLY PRESENTED)  The method of claim 13 further comprising:

  using an indicia of a receiving port in constructing the derived VLAN value.


16. (PREVIOUSLY PRESENTED)  A computer readable media containing instructions

for the practice of operating a switch for frames in a computer network, comprising:

  using one or more indicia of frame type found in the received frame to derive a

virtual local area network (derived VLAN) value, said derived VLAN used internal to

said switch, said derived VLAN value different from a VLAN value associated the frame

external to the switch; and

  using the derived VLAN value in making forwarding decisions.


17. (CANCELLED)


18. (PREVIOUSLY PRESENTED) A method of operating a switch for frames in a com-

puter network, comprising:

  receiving a frame (received frame) at a port of said switch, said received frame

containing one or more indicia of frame type, said one or more indicia of frame type in-

cluding an indicia of a protocol type;

  accessing a port index value associated with the port;

  deriving a virtual local area network (derived VLAN) value in response to said

one or more indicia of frame type and said port index value;

  accessing a forwarding data base with said derived VLAN value to determine a

destination address; and,

11  forwarding, in response to said derived VLAN value, said received frame to an

12  output port for transmission to the destination address.


1   19. (CURRENTLY AMENDED) An apparatus to forward frames in a computer network,

2   comprising:

3   a port to receive a frame (received frame), said port associated with a index value,

4   said received frame containing one or more indicia of frame type, said one or more indi-

5   cia of frame type including an indicia of a protocol type;

6   a parsing engine to derive a virtual local area network (derived VLAN) value in

7   response to said one or more indicia of frame type and said index value;

8   a forwarding ~~data base~~ database configured to use said derived VLAN value as

9   input and to yield a destination address as output; and,

10  an output port to transmit said received frame, in response to said derived VLAN

11  value, to said destination address.


1   20. (CURRENTLY AMENDED) An apparatus to forward frames in a computer network,

2   comprising:

3   means for receiving a frame (received frame), said received frame containing one

4   or more indicia of frame type, said one or more indicia of frame type including an indicia

5   of a protocol type;

6   means for accessing a index value associated with the means for receiving a

7   frame;

8   means for deriving a virtual local area network (derived VLAN) value in response

9   to said one or more indicia of frame type and said index value;

10  means for accessing a forwarding ~~data base~~ database with said derived VLAN

11  value to determine a destination address; and,

6

12      means for forwarding, in response to said derived VLAN value, said received

13   frame to an output port for transmission to the destination.


1    21-23. (CANCELLED)


1    24. (PREVIOUSLY PRESENTED)  The method of claim 1 wherein the step of deriving

2    further comprises:

3        generating a protocol code from the indicia of protocol type;

4        combining the protocol code with the VLAN value to produce a mapping address;

5    and

6        accessing a memory structure with the mapping address to obtain the derived

7    VLAN value.


1    25. (PREVIOUSLY PRESENTED)  The method of claim 1 wherein the indicia of proto-

2    col type indicates an Internet Protocol (IP) protocol type.


1    26.  (PREVIOUSLY PRESENTED)  The apparatus as in claim 9 further comprising:

2        a protocol mapping table to map the indicia of protocol type to a protocol code;

3    and

4        wherein the parsing engine is configured to combine the protocol code with the

5    VLAN value to produce a mapping address and to access a memory structure with the

6    mapping address to obtain the derived VLAN.

27.  (PREVIOUSLY PRESENTED)  The apparatus as in claim 9 wherein the indicia of protocol type indicates an Internet Protocol (IP) protocol type.

28.  (PREVIOUSLY PRESENTED)  The method of claim 18 wherein the step of deriving further comprises:

generating a protocol code from the indicia of protocol type;

combining the protocol code with the index value to produce a mapping address; and

accessing a memory structure with the mapping address to obtain the derived VLAN.

29.  (PREVIOUSLY PRESENTED)  The method of claim 18 wherein the indicia of protocol type indicates an Internet Protocol (IP) protocol type.

30.  (PREVIOUSLY PRESENTED)  The apparatus as in claim 19 further comprising:

a protocol mapping table to map the indicia of protocol type to a protocol code; and

wherein the parsing engine is configured to combine the protocol code with the index value to produce a mapping address and to access a memory structure with the mapping address to obtain the derived VLAN.

31.  (PREVIOUSLY PRESENTED)  The apparatus as in claim 19 wherein the indicia of protocol type indicates an Internet Protocol (IP) protocol type.

32.  (NEW)  A method comprising:

receiving a frame at a input port, the frame including a protocol type;

3      accessing a virtual local area network (VLAN) value associated with the input

4  port;

5      associating the frame with a protocol code based on the frame's protocol type;

6      concatenating the protocol code together with the VLAN value to produce a map-

7  ping address;

8      applying the mapping address to a memory structure to obtain a derived VLAN

9  value that is based upon both the frame's protocol type and the VLAN value associated

10 with the input port, the derived VLAN value to differ form at least one other derived

11 VLAN value for another frame received on the input port, but having a different protocol

12 type;

13     accessing a forwarding database with the derived VLAN value to determine a des-

14 tination address; and

15     forwarding the frame to an output port for transmission to the destination address.


1  33. (NEW)  The method of claim 32 wherein the step of associating further comprises:

2      mapping the protocol type to a protocol code using a protocol mapping table.


1  34. (NEW)  The method of claim 32 wherein the frame includes the protocol type in a

2  protocol type field.


1  35. (NEW)  The method of claim 32 wherein the protocol type indicates Internet Packet

2  Exchange (IPX) protocol.


1  36. (NEW)  An apparatus comprising:

2      an input port to receive a frame, the frame including a protocol type, the input

3  port associated with a virtual local area network (VLAN) value;

4      a protocol mapping table to map the frame's protocol type to a protocol code;

5  an engine to concatenate the protocol code together with the VLAN value to pro-

6 duce a mapping address, and to apply the mapping address to a memory structure to ob-

7 tain a derived VLAN value that is based upon both the frame's protocol type and VLAN

8 value associated with the input port, the derived VLAN value to differ form at least one

9 other derived VLAN value for another frame received on the input port, but having a dif-

10 ferent protocol type;

11  a forwarding database to use the derived VLAN value to determine a destination

12 address; and

13  an output port to transmit the frame to the destination address.


1 37. (NEW)  The apparatus of claim 36 wherein the frame includes the protocol type in a

2 protocol type field.


1 38. (NEW)  The apparatus of claim 36 wherein the protocol type indicates Internet

2 Packet Exchange (IPX) protocol.


1 39. (NEW)  A method comprising:

2  receiving a frame at a input port, the frame including a protocol type and a source

3 address;

4  in response to the protocol type indicating a particular protocol type, parsing the

5 source address to obtain a subnet value;

6  applying the subnet value to a memory structure to map the subnet value to a de-

7 rived VLAN value, the derived VLAN value to differ form at least one other derived

8 VLAN value for another frame received on the input port, but having a different subnet

9 value;

10  accessing a forwarding database with the derived VLAN value to determine a des-

11 tination address; and,

12      forwarding the frame to an output port for transmission to the destination address.

1    40. (NEW)  The method of claim 39, wherein the particular protocol type is Internet Pro-

2    tocol (IP).

1    41. (NEW)  An apparatus comprising:

2          an input port to receive a frame, the frame including a protocol type and a source

3    address;

4          an engine to, in response to the protocol type indicating a particular protocol type,

5    parse the source address to obtain a subnet value, and to apply the subnet value to a

6    memory structure to map the subnet value to a derived VLAN value, the derived VLAN

7    value to differ form at least one other derived VLAN value for another frame received on

8    the input port, but having a different subnet value;

9          a forwarding database to use the derived VLAN value to determine a destination

10   address; and

11         an output port to transmit the frame to the destination address.

1    42. (NEW)  The apparatus of claim 41, wherein the particular protocol type is Internet

2    Protocol (IP).